

Amendments to the specification

Please replace paragraph 2 with the following paragraph:

[2] Electrical stimulation of the spinal cord and deep brain has been used for pain relief and to control movement disorders. Electrical leads having many electrodes are implanted in the body such that one or more cathodes and one or more anodes are in optimal locations to produce benefits or to minimize undesirable side effects. Figure 1 shows a typical implantable electrical stimulation system. An implantable pulse generator 10 generates the electrical signals that will provide the stimulation. A cable 20 connects the implantable pulse generator 10 to a lead 30. Lead 30 contains individual electrodes 31-40. Cable 20 contains ten-40 separate conductors connecting ing the implantable pulse generator to each of the electrodes 31-40. Implantable electrical stimulation systems are described in co-pending patent application serial No. 09/024,162 filed February 17, 1998 and co-pending patent application serial No. 08/627,576 filed April 4, 1996. The entire disclosures of both co-pending applications are incorporated herein by reference.

Please replace paragraph 17 with the following paragraph:

[17] Electrode array 228 can be implanted at a site within a patient adjacent the tissue to be stimulated. Electrode array 228 has six electrodes 238-243 arranged in a straight line for illustration purposes only. Each of the electrodes 238-243 are-is electrically insulated from the other electrodes and can have an area of about 1-6 mm². In operation, several neighboring electrodes can be connected in parallel to have a combined surface area of 6-24 mm². Of course other sizes and configurations can be used to meet the patient's treatment needs. Electrodes 238-243 are electrically conductive and are preferably made from a metal like platinum or iridium.

Please replace paragraph 19 with the following paragraph:

[19] Extension unit 226 allows a physician or patient to select which electrodes 238-243 will receive stimulation pulses. Being able to select and activate electrodes from a large number of possible sites provided by the preferred embodiments is valuable in case any site becomes unusable due to mechanical/electrical problems, scar tissue, electrode array migration, etc. A near neighboring site might give almost as useful a result. Furthermore, one does not always know before implantation what is the best strategy for electrode array placement and electrode polarity. Extension unit 226 allows the choice to be made later, and with additional reprogramming at later dates, to give degrees of freedom in the active electrode positions. For example, it is sometimes useful to have three or more electrodes in a line (especially transverse to the spinal cord axis), so that two or three can be chosen at preferred medial/lateral positions. The present invention enables changes in effective stimulation area after implantation by programming only while minimizing the number of conductors that connect IPG 220 to electrode array 228.